Effect of intermittent inspiratory leaks on measurement of lung clearance index using nitrogen and sulfur hexafluoride

From the authors:

We thank C.A. Whitfield and colleagues for their interest in our study [1], and agree that the effects of leaks on multiple-breath washout (MBW) outcomes are dependent on the type of tracer gas. Efforts should be made to develop an online feedback to inform operators of the tightness or leakiness of the system [2].

We used *in vivo* data to model leaks. The assumption of even mixing of leaked gas may be regarded as a limitation of our study. We, however, do not assume that modelled leaks in our study would be easily visible during testing. Figure 3a [1], for example, displays traces during a temporary leak across two tidal breaths that cannot be easily identified. The current mathematical lung model described by C.A. Whitfield and colleagues assumes a simple, symmetrically branching, trumpet airway. The interpretation is limited, as the data from the lung model seem preliminary [3]. It remains unclear if the model accounts for uneven gas mixing and validation *in vivo* is required. Taken together, MBW using nitrogen is susceptible to leaks. Data on the effects on leaks on MBW using sulfur hexafluoride are inconclusive so far.

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References

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Nitrogen MBW is susceptible to leaks; effects of leaks on sulfur hexafluoride MBW require further study http://ow.ly/iY6o30lGchV

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